

Title: Dyskeratosis Congenita GeneReview Supplemental Material – Table 5

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Table 5. Selected *TERT* Allelic Variants

Class of Variant Allele	DNA Nucleotide Change (Alias ¹)	Predicted Protein Change	Disorder	Reference Sequences	Literature Reference
Benign	c.915G>A	p.Ala305Ala	Normal variant		Vulliamy et al [2005]
	c.2097 C>T	p.Ala699Ala	Normal variant		Vulliamy et al [2005], Yamaguchi et al [2005]
	c.2178 G>A	p.Thr726Thr	Normal variant		Vulliamy et al [2005], Yamaguchi et al [2005]
	c.3039 C>T	p.His1013His	Normal variant		Vulliamy et al [2005], Yamaguchi et al [2005]
Pathogenic	c.97C>T	p.Pro33Ser	Idiopathic pulmonary fibrosis	NM_198253.2 NP_937983.2	Tsakiri et al [2007]
	c.164T>A	p.Leu55Gln	Idiopathic pulmonary fibrosis		
	c.164T>A	p.Leu55Gln	Idiopathic pulmonary fibrosis		Armanios et al [2007]
	c.112delC	p.Leu38TrpfsTer40	Idiopathic pulmonary fibrosis		Armanios et al [2007]
	c.430G>A	p.Val144Met	Idiopathic pulmonary fibrosis		Tsakiri et al [2007]
	c.604G>A	p.Ala202Thr	Aplastic anemia		Yamaguchi et al [2005]
	c.835G>A	p.Ala279Thr	Dyskeratosis congenita/ aplastic anemia		Vulliamy et al [2005]
	c.1234C>T	p.His412Tyr	Aplastic anemia		Yamaguchi et al [2005]
	c.1378_1380delCAG	p.441Gludel	Normal variant		Yamaguchi et al [2005]
	c.1456C>T	p.Arg486Cys	Idiopathic pulmonary fibrosis		Tsakiri et al [2007]
	c. 1710(G>T;G>C) ²	p.Lys570Asn	Dyskeratosis congenita		Xin et al [2007]
	c.1892G>A	p.Arg631Gln	Thrombocytopenia/ pulmonary fibrosis		Kirwan et al [2008]

Class of Variant Allele	DNA Nucleotide Change (Alias ¹)	Predicted Protein Change	Disorder	Reference Sequences	Literature Reference
	c.2045G>A	p.Gly682Asp	Dyskeratosis congenita		Xin et al [2007]
	c.2029G>T	p.Gly677Cys	Dyskeratosis congenita/ aplastic anemia		Yamaguchi et al [2005]
	c.2080G>A	p.Val694Met	Aplastic anemia		Yamaguchi et al [2005]
	c.2110C>T	p.Pro704Ser	Dyskeratosis congenita		Du et al [2009]
	c.2147C>T	p.Ala716Val	Aplastic anemia		Du et al [2009]
	c.2162C>G	p.Pro721Arg	Dyskeratosis congenita		Vulliamy et al [2006]
	c.2177C>T	p.Thr726Met	Dyskeratosis congenita		Xin et al [2007]
	c.2240delT	p.Val747AlafsTer20	Idiopathic pulmonary fibrosis		Tsakiri et al [2007]
	c.2315A>G	p.Tyr772Cys	Idiopathic AA		Yamaguchi et al [2005]
	c.2431C>T	p.Arg811Cys	Autosomal recessive DC		Marrone et al [2007]
	c.2537A>G	p.Tyr846Cys	Aplastic anemia		Du et al [2009]
	c.259G>A	p.Arg865His	Idiopathic pulmonary fibrosis		Tsakiri et al [2007]
	c.2628C>G	p.His876Gln	Aplastic anemia		Du et al [2008]
	c.2701C>T	p.Arg901Trp	Autosomal recessive DC		Marrone et al [2007]
	c.2706G>C	p.Lys902Asn	Dyskeratosis congenita		Armanios et al [2007]
	c.2935C>T	p.Arg979Trp	Dyskeratosis congenita		Vulliamy et al [2005], Savage et al [2006]
	c.3329C>T	p.Thr1110Met	Idiopathic pulmonary fibrosis		Armanios et al [2007]
	c.3043T>C	p.Cys1015Arg	Aplastic anemia		Du et al [2009]
	c.3184G>A	p.Ala1062Thr	Aplastic anemia		Yamaguchi et al [2005]
	c.3268G>A	p.Val1090Met	Aplastic anemia		Yamaguchi et al [2005]
	c.3404_3580del177 (3346_3522del)		Idiopathic pulmonary fibrosis		Tsakiri et al [2007]
	c.219+1G>A (IVS1+1G>A)	--	Usual interstitial pneumonia		Armanios et al [2007]

Class of Variant Allele	DNA Nucleotide Change (Alias ¹)	Predicted Protein Change	Disorder	Reference Sequences	Literature Reference
	c.2613-2A>G (IVS9-2 A>C)	--	Idiopathic interstitial pneumonia		Armanios et al [2007]

Note on variant classification: Variants listed in the table have been provided by the author. *GeneReviews* staff have not independently verified the classification of variants.

Note on nomenclature: *GeneReviews* follows the standard naming conventions of the Human Genome Variation Society (www.hgvs.org). See [Quick Reference](#) for an explanation of nomenclature.

1. Variant designation that does not conform to current naming conventions
2. Uncertainty of nucleotide change in parenthesis

References

Armanios MY, Chen JJ, Cogan JD, Alder JK, Ingersoll RG, Markin C, Lawson WE, Xie M, Vullo I, Phillips JA 3rd, Lansdorp PM, Greider CW, Loyd JE. Telomerase mutations in families with idiopathic pulmonary fibrosis. *N Engl J Med.* 2007 Mar 29;356(13):1317-26.

Du HY, Pumbo E, Ivanovich J, An P, Maziarz RT, Reiss UM, Chirnoma D, Shimamura A, Vlachos A, Lipton JM, Goyal RK, Goldman F, Wilson DB, Mason PJ, Bessler M. TERC and TERT gene mutations in patients with bone marrow failure and the significance of telomere length measurements. *Blood.* 2009 Jan 8;113(2):309-16.

Kirwan M, Vulliamy T, Beswick R, Walne AJ, Casimir C, Dokal I. Circulating hematopoietic progenitors are differentially reduced amongst subtypes of dyskeratosis congenita. *Br J Haematol.* 2008 Mar;140(6):719-22.

Marrone A, Walne A, Tamary H, Masunari Y, Kirwan M, Beswick R, Vulliamy T, Dokal I. Telomerase reverse-transcriptase homozygous mutations in autosomal recessive dyskeratosis congenita and Hoyeraal-Hreidarsson syndrome. *Blood.* 2007 Dec 15;110(13):4198-205.

Savage SA, Stewart BJ, Weksler BB, Baerlocher GM, Lansdorp PM, Chanock SJ, Alter BP. Mutations in the reverse transcriptase component of telomerase (TERT) in patients with bone marrow failure. *Blood Cells Mol Dis.* 2006 Sep-Oct;37(2):134-6.

Tsakiri KD, Cronkhite JT, Kuan PJ, Xing C, Raghu G, Weissler JC, Rosenblatt RL, Shay JW, Garcia CK. Adult-onset pulmonary fibrosis caused by mutations in telomerase. *Proc Natl Acad Sci U S A.* 2007 May 1;104(18):7552-7.

Vulliamy TJ, Marrone A, Knight SW, Walne A, Mason PJ, Dokal I. Mutations in dyskeratosis congenita: their impact on telomere length and the diversity of clinical presentation. *Blood.* 2006 Apr 1;107(7):2680-5.

Vulliamy TJ, Walne A, Baskaradas A, Mason PJ, Marrone A, Dokal I. Mutations in the reverse transcriptase component of telomerase (TERT) in patients with bone marrow failure. *Blood Cells Mol Dis.* 2005 May-Jun;34(3):257-63.

Xin ZT, Beauchamp AD, Calado RT, Bradford JW, Regal JA, Shenoy A, Liang Y, Lansdorp PM, Young NS, Ly H. Functional characterization of natural telomerase mutations found in patients with hematologic disorders. *Blood.* 2007 Jan 15;109(2):524-32.

Yamaguchi H, Calado RT, Ly H, Kajigaya S, Baerlocher GM, Chanock SJ, Lansdorp PM, Young NS. Mutations in TERT, the gene for telomerase reverse transcriptase, in aplastic anemia. *N Engl J Med.* 2005 Apr 7;352(14):1413-24.